

SUBTERRANEA BRITANNICA

SECRETARY'S NEWSLETTER NO. 11 SEPTEMBER 1993

EDITORIAL

As Sub. Brit. approaches its 20th birthday in 1994 there is little doubt that it is thriving . The membership grows, Study Weekends are enthusiastically supported and the popularity of the Day Conferences increases. Yet there is a down side in that the committee needs new blood. The Chairman, Secretary and Treasurer have been in office for nine years and in fact the treasurer has indicated that next year he intends to resign. Without a treasurer the society will die. Please could someone make discreet signals that they could take on the job!

The position of me, the secretary, is that I am now involved in too many jobs. This year I have produced the newsletters, am producing the Bulletin (it will arrive shortly), organised the Day Conferences and organised the Study Weekend. In addition the normal secretarial work has been abnormally heavy since Sub. Brit. has been heavily publicised and we have had literally hundreds of enquiries. Next year this work load diminishes since I will not be involved in the organisation of the Study Weekend and M.C. Black has offered to produce the Bulletin for the year 1994. But it needs someone to take it over permanently. Please can we have volunteers. It is a not too difficult job for a capable person since help and advice can be given in the acquisition of articles.

The principle problem for Sub. Brit. is that it is not realising its potential. For example we could organise one or two trips each year apart from the Study Weekend. But it needs a volunteer to take on the job. It is not difficult - it consists of ringing up one or two people as advised by the secretary or chairman etc. fixing dates and conferring with the secretary as regards publicizing the event. It is interesting and as a perk you can make sure the date suits you if you wish to attend.

To summarise and elaborate we will need a new treasurer for year 1995, we need a new Bulletin editor in 1995, we need a trips organiser starting now and we need volunteers to take notes at the Day Conferences. Also for 1995 we need some one to think about a venue for the study weekend. Over 20 years we have covered most of the British regions. How about Northern France or the Channel Isles.? Could fluent French speakers who could help with communication step forward please.

If you tentatively or enthusiastically take on any jobs you will receive unstinting and valuable help (if wanted) and a pat on the back and certainly a drink or two at my expense if I see you in the vicinity of a bar.

WELCOME TO,

Bernard Green, Cumbria
Geoffrey Stone Devon
J.W. Ridgway, Reading
L.A. Thorn , Swansea
A.C. Carter, Fife
D. Roberts, Middlesex
G.W. Lubin Essex
Linda Harris, London
W.G. Davis Worthing
A.A. Richardson Wiltshire
John Broomfield, London
Ian Firth, Staffordshire.
D.C. Gordan, Kent
W.D. Ryan, Lancashire.
Edward Worrall, Devon
Sarah Cash, Herts
J.D. Lawal, London
Jill Brown, Birmingham
Edward Renshaw, Bristol
Elizabeth Asfew, Ethiopia
Noel Gregory, Lancaster
Peter Willcocks, Herts
J. Wherry, Peterborough

G. Smart, Bristol
G.H.F. Goolden, London
A.K. Moir, Kent
M.A. Pelton, Sussex
Laura Wilson, London
Gary Gill, Dover
Andy Hart, Croydon
S. Cracknell, London
Graham Stone, Herts
Andrew Kremer, London
Andrew Harrison, Cambridge
James Tawse, Dorset
N.D. Stanley, London
David Nicholls, Oxford
R.D. Faichney, Scotland
Ruth Aldridge, Surrey
Ian Bromley, Middlesex
Robyn Murdo-Smith, London
Angela Wilson, Worthing
C.M. Dunkey, Leicestershire
Patricia Edridge, Bath
A.P. Wislocki. London

SUBTERRANEAN SUBMARINE PENS.

Issue 15, June 1993, of Scallywag, a low circulation alternative magazine, contains an article on page 32 alleging that during WWII sappers excavated huge subterranean submarine pens in Portland Bill and Gibraltar, accessed by underwater flooded tunnels connecting with the sea bed, so that subs could come and go undetected. The author, who lives in Weymouth, claims to have been researching the subject for twenty five years.

This inherently unlikely James Bond scenario may or may not be true for Gibraltar (see Bulletin 28 for the official account of it's tunnels), but I happen to have some expertise with regard to wartime excavations at Portland.

I spent some time ten years ago identifying the anonymous sites in Some Special Storages from The Civil Engineer at War (I.C.E. 1946?). In the course of this I came across Paper 5453 I.C.E. Proceedings 1944, Tunneling with Pre-cast Concrete by Barney Pattenden. This describes the deep tunnelling into an escarpment of a control centre using concrete segmental tunnels 16ft 6ins, 12ft 3 ins and 8ft, totalling perhaps 150 feet, with 130 foot access tunnels and 120 feet of cover. From the uncensored version of the text and plans available in the I.C.E. archives, it is possible to identify the site as in the cliff face behind the Portland Dockyard, ST 696 742. By no stretch of the imagination could this modest control centre be a submarine pen. The only other major excavation known to locals was a tunnelled Oil Storage begun just before the war, the unfinished tunnels of which were used for shelter during the dive-bombing of HMS Foylebank in July 1940.

So I fear that the Portland subterranean sub pens join the limbo of other mythical underground spaces - for example the secret tunnels joining monasteries with nunneries complete with blind piper and his dog, the Victoria Line connection to Buckingham Palace, the Woodbridge/Bentwaters UFO hangar, the gathering caves of King John's rebellious barons and Dick Turpin, and the Margate Phoenician grotto. There must be something buried very deep in our psyche that is triggered by underground spaces to sustain such folklore!

Roger J Morgan August 1993

Roger is probably right. There was a mythical submarine pen under Newhaven Fort! Ed.

AND IF YOU DON'T BELIEVE THAT...

The Guardian, 6.9.93, reports that a submarine, believed German, has been found in a Turkish coal mine on the Black Sea coast. The land being mined has been recovered from the sea!

FREIGHT TUNNELS BENEATH CHICAGO

The strange story of the freight tunnels is described by Bruce Moffat in The First Chicago Subway, Traction & Models, January 1980.

The Illinois Telephone & Telegraph Co. was incorporated in 1899 and received a thirty year franchise from the city to construct a telephone system on condition that their cables were placed in conduits underground. But it was not long before it became evident that the company were constructing railway size tunnels underground and the ensuing dispute with the city came to a head in 1903. The result was that the company were allowed to continue to build railway tunnels but yearly compensation had to be paid to the city. The tunnels were horseshoe shaped and were eventually to accommodate 62 miles of track, 58 of which were underground. Mine type locomotives fed from an overhead 250 volts overhead trolley wire and operating on a two foot gauge track were used. In the heyday of the system 150 were operation. The purpose of the system was to transport mail, freight and other items between various places in the city. From the start it was financially unsuccessful and was to pass through the hands of a series of different operating companies until the original franchise ran out in 1929. After this it was operated by Chicago Tunnel Co.. This company's business depended on collecting merchandise from railroad freight houses and distributing it locally. Included in this was coal which, for example, was delivered to the larger offices, business and department stores. The company would also dispose of the ashes after the coal was burnt. The company was liquidated in 1959. It failed because the railroad freight houses moved out of town, it was cheaper to deliver by road throughout the city and coal went out of fashion as a heating fuel. Other than running cables there seems no present use for the tunnels.

BUT THE TUNNELS FLOODED

Early this year a TV company which used the Chicago tunnels for their cables warned city officials that water was leaking into the tunnels but no action seems to have been taken. Eventually water from the man-made Chicago river burst into the tunnels flooding 28 buildings and leaving 74 without electricity. Traffic lights in the city were also put out of action. The city's transport commissioner was sacked. As at April the buildings were still flooded. The plan for draining the freight tunnels consists of draining them into Chicago's deep tunnel 85m below street level. 5 days will be required to drain 250m gallons of water.

From Building Design, 24 April 1993. (Thanks to Roger Morgan for these contributions.)
And London's water table is writing and tunnels are leaking. Could it happen here?

A VERY UNUSUAL METHOD OF DEWATERING A COLLIERY

The name James Brindley is, or at least used to be, known to school children but one of his earliest projects was the draining of Wet Earth Colliery which is at Salford in the Irwell Valley.

Started in 1740 the pit was dug to exploit coal 3000ft down but traditional pumping methods could not cope with the flood water. Brindley's solution was to capture water from the river Irwell by means of a weir and lead it to the pit head by means of a tunnel, an inverted siphon and an artificial streamway. At the pit head it was made to drive a large water wheel which powered the pumps which drained the pit. The water wheel was installed in a wheel pit which was drained by tunnel (tailrace) back into the Irwell.

The colliery was to have its period of prosperity but closed in 1928. In the 1950s two engineers, Banks and Schofield developed a passionate interest in the site and its scanty surface remains. The fruit of their labour was a book, *Brindley at Wet Earth Colliery: an engineering study* published in 1968. Following the publication of this book the colliery site was levelled and landscaped which included filling in the water wheel pit.

At this point the story should have ended but by 1990 discerning visitors to the site came began to wonder if Banks and Schofield had researched the underground aspects of the site diligently and a group lead by Alan Davies, museum officer at Salford Mining Museum were able to restart site investigations. The search for the tailrace tunnel, vividly described by Banks and Schofield took 18 months - Banks and Schofield had located the wrong tunnel.

In 1992 the Greater Manchester Archaeological Unit excavated the wheel pit but not to the level which revealed the true floor of the pit. This was left to the Wet Earth Colliery Exploration Group as it is now called. The importance of their work is that it has linked the tailrace to the water wheel pit.

In March of this year the site was opened to the public who can now descend into the water wheel pit.

The project will be described by Alan Davies himself at our Day Conference on October 16th

ANOTHER HORIZONTAL WELL

The subject of horizontal wells, at particularly at Folkestone and Reigate, has occurred in previous newsletters. Here we have mention of one at Wendover which supplied the Grand Junction Canal. Perhaps one of our readers can enlighten us on its present condition.

‘In examining the strata and springs on the north side of the chalk summit, between Tring and Wendover, with a view to better supplying the Wendover branch and summit-level with water, Mr. Bevan discovered, that different water-tight beds in the lower chalk held up springs a considerable height above the canal, owing to their dip to the southward; and in order to avail himself of this water, a sough or tunnel was began in the upper bank of the canal near Wendover, and has been driven about half a mile southward, intersecting different strata of chalk from beneath, and increasing in its supply of water as it proceeded; but observing that the principal vent of this water was in the winter and early spring months, when the other sources were more than sufficient for the supply of the canal, it occurred to that ingenious gentleman to place a strong and water-tight valve in the most favourable part of this tunnel, which, as soon in the autumn as the canal is amply supplied from its other feeders, is shut, and kept so, until these begin again to slacken in their supply; the water in the immense planes of these beds of chalk, in the mean time accumulating, as in a vast subterranean reservoir, the springs rise to the level which they originally did before this tunnel was begun, about 20 feet above the canal; and for many weeks after the opening of the valve, in the beginning of summer, they pour forth a most surprising stream of water into the canal, which otherwise would have vented miles off in the chalk vallies, or slowly have made its way down through the joints and fissures in the strata to springs at the bottom of the chalk, which vent below the level of the canal.’

From, Abraham Rees (1972) *Rees's manufacturing industry (1819 - 20)*, Volume Three. A selection from *The Cyclopaedia; or Universal Dictionary of Arts, Sciences and Literature*, by Abraham Rees, Edited by Neil Cossons. David & Charles. *Rees's Cyclopaedia* was first published serially, 1802 - 20 pp. 117 - 118 *Grand Junction Canal*. (Thanks to Paul W. Sowan.)

THE ROCK HOUSES OF KINVER EDGE

Kinver Edge is a thickly wooded red sandstone escarpment which overlooks the village of Kinver in the Midlands which was once a thriving industrial centre. This village is associated with rock cellars and walls but more striking is the fact that The Edge had been burrowed into at various levels to construct family dwellings. It is said that this started in the sixteenth century. By the late 1950s without electricity and with only earth closets, no longer compatible with modern living standards all the dwellings had been abandoned. Deterioration largely due to vandalism was rapid which caused the site owners, The National Trust, to seal up some of the chambers and

demolish the dwellings on the top level for safety reasons. The dwellings were fronted by conventional house fronts and it was these which needed demolition. But the National Trust found it was still in constant and expensive conflict with the vandals who always had the upper hand.

Recently Trust changed its strategy - it was decided to rebuild the houses on the upper level at the part of the ridge known as Austin Holy Rock and allow them to once again to be used for habitation. In this way the site would become unattractive to undesirables. This challenging job entailed much research on old photographs and tracking down former residents.

Today some houses are in occupancy and site, which is very attractive, may be visited but there is still much work to be done

These notes have been made from Sarah-Jane Forder's article in The National Trust Magazine, No. 69, June 1993. Price 50p. The Trust is also appealing for funds to complete the project. Contact Richard Offen, The National Trust, Attingham Park, Shrewsbury, Shropshire SY4 4 TP. tel. 074 377 343

BUT KINVER HAS LESS RUSTIC ASSOCIATIONS

During the second year of WWII schemes were projected to establish underground factories particularly for the production of aircraft. One such actually built was at Drakelow which is at the south end of Kinver Edge. After the war it was later to become Regional Seat of Government 9 then Sub Regional HQ 92. Roger Morgan has recently visited the site and confirmed its presence. One must assume it will eventually be put up for sale. Has anyone anything to say about it?

FORTRESS BRITAIN. AND HOW ABOUT A GAZETTEER OF EXISTING AIR-RAID SHELTERS?

The Fortress Study Group the CBA and other organisations are to organise, The defence of Britain, which is a project to record and interpret the military remains to the two world wars. In 1994 it could be the largest volunteer project ever taken in the UK.

Members of Sub. Brit. will be aware of numerous underground structures associated with war and I would be interested in hearing from them so that we can play our part in this project.

For my own part I have been scouring our local district for all war-time remains and can attest to the complexity of this fascinating subject. It is relatively easy to record obvious freestanding wartime structures but what about, for example, minor re-alignments to roads which occurred in my own district of Tandridge in East Surrey. What did the Canadian army authorities have in mind?

I am particularly concerned with the subject of public air-raid shelters. Most public air-raid shelters were relatively small and all were ugly and squalid. For this reason most were destroyed immediately after WWII and since then there has been a steady diminution in their numbers perhaps recently at an increased rate. To my knowledge no one has ever protested about the destruction of a WWII air-raid shelter and even worse few people now recognise one when they see one. Local historians tend to completely ignore them. This will eventually result in none being left at all and from the archaeological point of view an aspect of WWII will be unrepresented.

I am therefore appealing for information on such air-raid shelters with the view to stimulating a nationwide search. My list will appear in the next newsletter.

BRIGHTON'S SEWERS

We, Barbara and Malcolm Tadd, recently joined in a tour of what is described as Brighton's Victorian Sewers but which merely encompasses a small part of the system. This apart it affords a very interesting experience and is one of Brighton's tourist attractions although it is difficult to book a place on a tour and it is not free.

Proper sewers did not come to Brighton until 1860 in which year it was decided to void the whole of Brighton's effluent into using three outfalls which projected into the sea. This system was not popular, and by 1869 it was decided to construct an intercepting sewer - a main trunk into which the other sewers would drain and which would take the sewerage out of the town altogether. Of the various schemes projected to accomplish this the one of Sir John Hawshaw was chosen. This elected to drain the sewers into an outfall which was four miles east of the Borough Boundary at Portobello.

The contractors who took on the construction were unfortunate since the volumes of water they encountered were greater than expected. The first contractor, Matthew Jennings, withdrew and the second Messrs John and Son made a loss.

When it was finished in 1874 the intercepting sewer was 7.25 miles long, made of brickwork, and throughout most of its length had a 7ft diameter circular section. A short section at the western end was only 5ft in diameter.

The sewage needed to be pumped by nine engines controlling thirteen pumps. Ventilation was effected by sixty ventilating shafts and additional ones were installed in 1885 and 1876. The first of these at Rottingdean incorporated a replica of a coastguard cottage but this has since been replaced by a modern bungalow. The shaft of 1876

was topped with a tall chimney and a coke furnace drew a continuous draught of air through the sewer. This was demolished in 1933.

The present day visit consists of being taken through a doorway under the Palace Pier. This is an area where there is a storm water overflow. The intercepting sewer may be seen flowing through a commodious brick chamber. Entering this chamber is to experience one of the glories of Victorian brickwork. The problem with sewers is that they become overwhelmed with water in times of heavy rainfall. It is in this chamber that the excess effluent will spill over the sides of the intercepting sewer although there are boards to skim off solids. The overflowing effluent finds its way along brick tunnels which visitors are allowed to walk along and which eventually exit into the sea under the groyne next to the pier. Times of tours are controlled by the tide since sea water backs up the tunnels as the tide rises. Obviously visits are not possible in times of severe storms.

Visitors also see catch pits where grit washed down from the roads accumulates. These have to be dug out by hand at night when the sewage flow is low.

It must be said that the whole trip is mildly adventurous involving clambering on ladders between different levels and finally emerging at the side of the gardens in the Old Steine to the surprise of passers-by. Most people are surprised to find that the sewers are not smelly and the sewage is sufficiently dilute to be not too repellent.

But times are changing and the discharge of untreated foul storm water directly into the sea can no longer be permitted. If one walks along to the Marina at Black Rock one can see the start of massive new engineering works. At great expense Southern Water are constructing a tunnel under the beach..

The storm water will be caught and purified before discharge to the sea.

To visit the Brighton Sewers ring, 0273 474507. Southern Water Services Ltd, Lewes Wastewater Treatment Works, Mountfield Road, Lewes, BN7 3PS

PINNER CHALK. A BOOK REVIEW

Ken Kirkman, Pinner chalk mines, Pinner Local History Society Publications 13: viii + 64 ix - xvi pp. ISBN 0 9507955 6 9, 1992 £3.75 (p+p extra) from PLHS, 35 Albury Drive, Pinner, Middlesex HA5 3RL.

Many people have, for years, known of the existence of a chalk mine at Pinner (Middlesex); fewer have descended the 15 metre ladder pitch in the shaft giving access to the coalesced 1840s and 1850s - 1870s workings at 'The Dingles'; and fewer still are aware of the existence of several other small chalk mines in north Pinner. Ken Kirkman has now produced a well-researched and illustrated booklet which presents and interprets evidence from documentary sources, surface archaeology, and underground features. He claims, of one of the Pinner mines, that it 'may well be the best-preserved example of a local chalk mine in western Europe.' And of another that it has 'the deepest chalkmine shaft in the British Isles' (35 metres.)

These are largely agricultural chalk mines, worked partly via horizontal drift entrances now blocked from open chalk pits and more often from vertical shafts through superincumbent Lower Eocene beds. There is some evidence that flint was also taken, probably for building. As so often with such mines, there is relatively little archaeological evidence below ground ... although initials and names on walls and ceilings have largely been linked with documentary evidence. Methods of working were 'standard' chalk mining practice, although an interesting point is that a relatively restricted horizon of chalk was available between the water table at little depth, and the pebbles, conglomerate, sands and clays of the overlying Tertiary beds. As little as 0.3 metre of chalk was left as ceiling, and occasionally the miners unintentionally holed through.

The extent to which archival sources have been searched for relevant information is impressive, and one wonders what a similarly intensive search in connection with the Chislehurst 'caves' or the Pratts Bottom mine (both in former Kent) might not yield. The book is well-produced, with 12 maps and 11 photographs (plus another on the front cover which deserves explanatory text but seems not to have such.) The rather vague geological map is difficult to relate to the more detailed maps of north Pinner (adding the railway line and shaft locations would have helped.) and a sample vertical geological section would have been helpful to many readers. These quibbles apart, this book is excellent value and highly recommended to anyone interested in small-scale miscellaneous mining, and possible (especially archival) research approaches.

LONDON ELECTRICITY TO BUILD BIG CABLE TUNNEL

New tunnels seem to come thick and fast these days. On the heels of the London Water Ring Main comes London Electricity's cable tunnel which is to run from Pimlico to Wimbledon - 10km. LE have experience in cable tunnels since they already have between Duke Street and Leicester Square substation. The new tunnel will run

from Moreton Street substation in Pimlico, pass under the Thames, pass the disused Battersea power station and thence under Battersea park to a grid station at Wandsworth. A second section of the tunnel is aimed almost directly to Wimbledon where it connects with a grid station near the stadium.

Starting this month the two sections are to be excavated simultaneously using giant tunnelling machines. The result will be a 2.5m diameter tunnel in two sections. The section from Wandsworth to Pimlico will accommodate four 132kV circuits while the section from Wandsworth to Wimbledon will house two 132kV cables. Traditional hand digging of tunnels will only be used at the Moreton and Wimbledon ends. The tunnelling will involve minimum disruption to life on the surface but a number of maintenance service shafts will need to be sunk.

Although the London Clay is a perfect medium for boring tunnels, allowing 300-400 metres a week to be excavated, ground movement could be a problem. Therefore the tunnel will be reinforced with pre-cast concrete segments every 15 minutes as the excavation proceeds.

UNDERGROUND BRITAIN. BOOK REVIEW

A visitor's guide to underground Britain (caves, caverns, mines, tunnels, grottoes). By Richard Fells with photographs by Tim Grevatt. First published by Webb & Bower (Publishers) Ltd, 1989. 1993 edition published as "an imprint of The Godfrey Cave Group" by Bloomsbury Books, London. ISBN 1-8547-127-X. 140 pages, hardback with colour photographs. Available from the national chain County Bookshops for £5-99 (less discount to mailing list customers).

The author has selected a variety of accessible underground sites around the British mainland and Channel Islands which the interested tourist might want to visit. They are grouped together by area, each of which is given a simple location map for the sites described. The text for each site is of necessity brief and aims to capture general impressions rather than provide in depth details. A potted history is included for each, the accuracy of which I am not qualified to evaluate. This treatment is meant to provide useful reading for anyone considering if they are sufficiently interested to make the journey or perhaps to allocate time in what may be a short holiday stay. The aim is furthered by grouping together useful information for each site. Opening times, conditions to be expected and where to enquire for details. The photographs are good quality (though some are printed rather small) and show the subjects in the best possible lighting.

Anyone using the 1993 edition will need to check carefully that sites are still open as described before visiting. At least one has closed to the public since the original 1989 publication, which makes me suspect this may be a reprint without any revision. This book does not cater for the "serious academic" but it is relevant, well presented and excellent value at the stated price

Some members will be interested to know that the book includes a section on Monkton Farleigh ammunition depot with a picture of 14 District.

Brian Clarke

THE CHANNEL TUNNEL ASSOCIATION

The Channel Tunnel Association, a small voluntary organisation, was founded in the early 1960s with as its aim the encouragement of the building of a Channel Tunnel. That aim having now been achieved, although perhaps with a far heavier emphasis on road rather than rail traffic than the Association would have liked, the body voted in EGM today to wind itself up with effect from 30 June 1994 or at the date of the running of the first through passenger train. A formal opening date for the tunnel has been advertised for 6 May 1994, although freight may be flowing through the tunnel before then.

All 80 or so members will now be circulated, in the hope that they will endorse the winding up resolution. The Association's voluminous archive and library has already been donated to Churchill College, Cambridge, where it is available for research under the care of Mr. A.G. Brown. There are 12,000+ items, from newscuttings to books and Eurotunnel publications. Any remaining assets after the winding up seem likely to be given to one of the national railway pressure groups - the Railway Development Society, or perhaps the National Council for Inland Transport.

Paul W.. Sowan 26 June 1993

RCHME THESAURUS. A BOOK REVIEW

Thesaurus of archaeological site types. Royal Commission on the Historical Monuments of England / English Heritage, 1992. xxvi + 213pp. ISBN 1 873592 07 8 £10.

This thesaurus, the scope of which is strictly limited to England, is intended 'to standardise terminology and set up conceptual relationships between terms in order to assist indexing and to maximise the retrieval of informa-

tion.' It is essentially a consultative document, and 'comment' and 'candidate term' forms are printed at the front, for readers to put forward corrections, additions etc.

Some 3000 terms are listed, with users directed (for example) to use 'miners hut' rather than 'coe' and 'pound' rather than 'pinfold' in the interests of general comprehensibility. These terms are taken from the following classes:

- Agriculture and subsistence
- Civil
- Commemorative
- Commercial
- Defence
- Domestic
- Gardens and parks
- Industrial
- Maritime
- Objects
- Recreation
- Religious, ritual and funerary
- Transport
- Unassigned
- Water and drainage

The mineral working terms selected for inclusion are distinctly bizarre' Adit is in, but stope is not; bell pit is in, but pillar and stall is not; blue john mine is in, but fluorspar mine is not; potash mine is in (we do now have a very large potash mine at work in England), but so is nickel mine (I can think of no current or former nickel mine in the whole of the UK!) There is hopeless confusion over pits, mines, and quarries for clay, limestone, sand, sandstone etc.

Apart from various sorts of mineral workings specified by their products, the following specifically underground terms are recognised:

- Adit
- Air raid shelter
- Air shaft
- Armament depot
- Bell pit
- Burial vault
- Canal tunnel
- Cave
- Cave burial
- Cellar
- Cess pit
- Charnel house
- Cistern
- Cockpit
- Conduit
- Crypt
- Culvert
- Dene hole
- Drain
- Drainage level
- Drift mine
- Family vault
- Fish cellar
- Fogou
- Folly
- Grotto
- Hull
- Ice house
- Mine

Mine shaft
Oil well
Ossuary
Prospecting pit
Railway tunnel
Road tunnel
Rock cut Chamber
Rock cut dwelling
Rock cut house
Rock shelter
Sewer
Shelter
Souterrain
Tomb
Tunnel
Undercroft
Underground railway
Underground structure
Vault
Ventilation shaft
Well
Wine cellar

This is not an expensive volume, at £10, and could in the course of two or three revised editions evolve into something more comprehensive and useful. This will only happen if people study it carefully, and send in considerable numbers of completed 'comment' and 'candidate term' forms. The compiler(s) of the list appear to have had a somewhat antiquarian bias, which probably reflects ~ trawl for terms through the mainstream archaeological literature. This could be an opportunity to encourage more serious recognition of underground and industrial archaeology amongst the mainstream archaeological fraternity!

Paul W. Sowan

1 August 1993

MAN-MADE CAVES IN ICELAND

A year or two ago your Chairman received a letter from Iceland, forwarded by the Council for British Archaeology, enquiring about man-made or inhabited caves in the United Kingdom. Within the next few weeks, further copies of the same enquiry were forwarded to us by several county archaeological societies. By good fortune, your Chairman happened to be more than familiar with much of Iceland at first hand, maintains an extensive library or books from or about that country, and just about manages to read and speak appallingly ungrammatical simple Icelandic! A fruitful correspondence was entered into, in the course of which SB supplied information to the Icelanders concerning sites of interest in the UK and mainland Europe, and they sent back photographs and an interim report on their survey of Icelandic man-made or man-used caves, of which there are over 200.

The Icelandic team, Arni Hjartarson, Guðmundur J. Guðmundsson, and Hallgerður Gísladóttir, have now completed their research, and the results were published late last year (1991) as a well-produced hardback book, *Manngerdir hellar á Íslandi* (Man-made caves in Iceland), published by Bokautgafa Menningarsjóðs (the Cultural Publishing Fund) in Reykjavík.

Although some natural lava caves in Iceland have been adapted for human use (mainly for sheltering sheep or storing potatoes), the majority of the former inhabited caves were actually excavated in consolidated volcanic tuffs of various kinds. Palagonite tuff is the result of shock-chilling lava erupted under water or former ice cover; whereas subaerial tuff is simply consolidated air-fall volcanic ash. Either rock type, where excavated for cave formation, has a 'sandstone' texture, and the majority of the sites described in the book would have quite a familiar feel about them for visitors from Bristol, Reigate or Nottingham.

The majority of the sites are small (one-person or one-small-family) structures, and often of very simple layout - perhaps just one or two linked chambers, and a wall with door and windows across an open end facing the outside world. But there are some tunnel-entrance caves, some rock-cut flights of steps, and some vertical shafts. The largest cave (Hellnahellir in mid-south Iceland) is some 50 metres long, with a floor area of nearly 200 square metres. Runes and later inscriptions and carvings on the walls are reported from some sites, as are fittings or

internal structures such as mangers.

There is a 13-page section devoted to comparable sites in Britain and Europe, with appropriate credits and references to, amongst others, Sylvia Beamon's work on Royston Cave.

Whilst persons unused to Icelandic will obviously find the text more than intimidating, the body of the work is so laid out that sites (the great majority of them in south Iceland) are described in a systematic way, by district, with plans, elevations, photographs, and representations of inscriptions and carvings for each. This feature makes the volume (despite the language problem) of considerable potential interest to a far wider readership than the Icelandic-speaking community (all 280,000 of them')

Arni Hjartarson, Gudmundur J. Gudmundsson, and Hallgerdur Gísladóttir, *Manngerdir hellar á Íslandi*, Reykjavík: Bokautgafa Menningarsjods, 1991; 332 pp; ISBN 9979 822 04 X. Paul W. Sowan

BOOK REVIEW

Doodlebugs and Rockets The battle of the flying bombs

Froglets Publications : 208 pp ISBN 1 .3723~7 21 X

This profusely illustrated work is devoted to the story of the V1 and V2 attacks on London and south-eastern England during the second World War.

In addition to numerous accounts and illustrations of damage caused by enemy action, there are some short sections devoted to underground shelters. The Athol Terrace (Dover) shelters are mentioned on page 98 ... this row of houses 'faces across the Channel to enemy occupied France ... is in all England the inhabited place which is nearest the enemy.' Fortunately the back gardens, at the foot of the Dover Castle cliffs, lead direct into a tunnel system in the chalk. An old cement works railway tunnel at Swanscombe modified for sheltering is noticed in page 171, and Chislehurst Caves in pages 172 - 173.

Additional interest is provided by short sections devoted to places in Germany where the weapons are produced, stored, or launched ... so we find brief notes (and some illustrations) concerning the underground factory at Nordhausen (page 1~7, and on underground storage sites at St.. Leu d'Esserent (in the Oise valley, north of Paris), Nucourt (north-west of Paris), and a railway tunnel at Rilly - la - Montagne (south of Rheims.) These sites were bombed by the RAF.

24 December 1992

Paul W. Sowan

BOHEMIA SUBTERRAREA - the 1993 International Meeting at Prague 22 - 28 August

This, the latest in a series of international meetings to see and discuss man-made and man-used underground spaces, and to meet researchers from other countries, was attended by nine U.K. Subterranea Britannica members (a record), and some 20 or 80 persons from Austria, Belgium, France, the Netherlands, and Poland. Our hosts were Vaclav Cilek, David Havlicek, Pavel Bosak, and other members of Ceska Speleologiska Spolecnost (the Czech Speleological Society.) From our base at an hotel in the Southern Prague Suburb Krc (we soon found that pronouncing the seemingly impossible Czech words was easier than we thought'! we enjoyed one day of underground visits within the City boundary, and four very full days of excursions into the countryside to the north, east, and west of the capital.

The programme of visits was admirably balanced, both in terms of type of site, and of ease or difficulty of access - there really was something for everyone. It is expected that detailed notes on at least a selection of the sites will be prepared for publication. The brief details are as follows:

In Prague

Rudolf's' Water Tunnel

This is a 1.1 km tunnel dug under the northern part of the City centre during 1581 - 93 under the instructions of Emperor Rudolf II to conduct water from the River Vlatava to ornamental lakes in his grounds at Stromovka. Driven from five shafts (depths up to at least 45 metres) through Ordovician shales, and still operational. The tunnel profile was not unlike that of the water tunnels at Exeter (Devon.)

Mocalka Sand Mines in Liben / Prosek Districts

An irregular and quite extensive network of workings in friable sandstone which, largely, was crushed to produce sand for moulding, scouring sanding floors etc. The rock is a white kaolinitic sandstone of Cenomanian age (i.e.

equivalent in age to English Lower Chalk) The mine entrances are in the base of sandstone cliffs overlooking Prague from the north. Development was clearly influenced by two prominent sets of joints at approximately right angles to each other. These sand mines were strongly reminiscent of some of the smaller Reigate (Surrey) sand mines.

A 'caving' type survey, rather than an archaeologically detailed one, lacking the major joint planes, was distributed. Dates as far back as 1798 have been established.

Visnovka Tunnels North of Hloubetin district, Prague.

A tunnel some 280 metres long, leading from a roadside embankment to a point below the former Kbely military airport. About two thirds of the way in, the tunnel widens out, and there are three linked small rooms and a second parallel tunnel, all cut through Cenozoic sandstones and grey clay layers. At the innermost end there are concrete-lined staircases leading up to a sealed entrance within the airfield boundary. It is thought that this system of tunnels may have commenced as a small sand-workings similar to Mocalka; been extended as a search-tunnel for workable lignite beds (which have been mined intensively elsewhere in NE Prague); and finally elaborated into an air-raid shelter for the Army airport.

Bohemian Karst Area - west of Prague

Opencast Limestone Pits Worked via Underground Chutes and Tunnels North of Karlstejn

A series of enormous deep opencast limestone pits up to 800 metres x 120 metres in area, and 100 metres deep has been made in steeply dipping Palaeozoic limestones in an area of country some 3 km long from ENE to WSW about 3km north of Karlstejn. These have all been connected underground by a long main tunnel and several branch tunnels linking a dozen or more pits. Limestone was dropped down steeply inclined underground chutes to loading areas adjoining the tunnels and taken out by narrow gauge railway. Working started on a large scale underground c. 1897 to supply limestone for iron smelting at Kladno NW of Prague. Disconnected extraction pits were made because the intervening limestone was unsuitable on account of solution-caves and their infilling materials. Small-scale medieval workings and 'prospecting trenches' are to be found on the surface between the opencasts. The system has been abandoned since the early 1960s, and is now of importance for hibernating bats, and for giving access to some cave systems.

St. Ivan's Travertine Cave at the Church Sv. Jan Pod Skalou

A former hermit's cave excavated at the rear of, and adjoining, the church. It is within an important 12 metre thick bed of travertine which contains fossil and sedimentary evidence for climatic changes during some 5,000 years.

Koneprusy Caves, about 5 km South of Beroun

A large and impressive show cave system, in the upper parts of which evidence of counterfeiting coins has been discovered (Medieval period.)

At the conclusion of the Bohemian karst tour, we enjoyed an excellent 'barbecue' in an opencast limestone pit close to Koneprusy. Even the English (briefly) joined in some singing and jollity!

Kutna and Hora Metalliferous Mining area about 60 km east of Prague

A formerly wealthy city with the impressive Cathedral of St. Barbara, patron saint of miners. The Cathedral contains an impressive Medieval wall-painting depicting miners and their tools of their trade. Also in the town we visited a 19th ossuary, which some at least regarded as the ultimate in bad taste, in which a selection of bones from some 40,000 persons had been used to create 'decorations' including a chandelier, garlands, shields, and the like!

Medieval 'Osel' Show Mine and Museum of Mining

A small museum of well-presented metalliferous mining artefacts, and a guided tour of a very narrow twisting mine tunnel. It seems that the tunnel was probably driven in the relatively soft weathered uppermost levels of the Palaeozoic rocks in which the mineralisation occurs - in places the basal Cretaceous conglomerate forms the tunnel roof. At one or two places it is possible to look down into flooded shafts or stopes.

Kank Medieval Silver Mine, near Kutna Hora

A branching system of small mine tunnels with, at one point, an original miner's bench. We were told that this recently discovered mine had, to date, only been visited by 15 persons. When we arrived on site, we saw why! The mine tunnels had been revealed by an impressive crown hole collapse (presumably into younger shafts and workings at a deeper level) the descent into which had been described as 'about two metres' but turned out to be considerably more, and almost vertical! At least one representative of each nation attending made the descent, using a rope, and managed to climb out again

Josefov 'fortress town', Jaromer, c. 110 km ENE of Prague

Josefov, now an urban conservation area forming a part of the neighbouring town of Jaromer, is a fortified town founded in 1780 by Emperor Joseph II, about 20 km from the Polish border. Massive brick fortifications designed by Duhamel de Querlonde are very reminiscent of those at Maastricht, and many in France, and contain reputedly 50 km of 'shooting galleries', communication tunnels, countermine tunnels (on two levels) and so forth. After the public tour of some of the cleaner lengths of tunnel, a smaller party elected to see more of the system, which involved quite a lot of paddling through shallow water, scrambling over banks of clay that had entered, etc. During the Josefov excursion the early 1950s Skoda bus, the vehicle of Ceska Speleoloeiska Spolecnost, which had been relentlessly grinding up and down the Czech Republic road system at about 50 mph made alarming noises and ground to what we all thought likely to be a permanent halt. Lunchtime was declared, bottles of wine appeared, a local pub was visited, and speculations were entered into concerning the possibilities of completing the programme by local bus and train services (the Czech Republic still has an intensive network of country branch lines.) However, all was well - miraculously, the bus completed the trip, and an alternative (much less characterful and better sprung) bus appeared for the final day! We trust the original will soon be restored to perfect health!

Sandstone Pseudokarst Areas North of Prague.

En route to our first stop, in the suburbs of Melnik, our new bus (whilst attempting to negotiate a tight hairpin bend in a tiny sleepy village) suddenly found itself in an impossible position, with the rear end almost embedded in the road, and one front wheel well off the ground. We missed seeing how this problem was resolved, as we were within easy walking distance of our first site for the day!

Vehlovice Underground Stone Quarry, North of Melnik

The first, and only, undisputed building-stone quarry, worked in Upper Cretaceous clay- limestones for local use c. 18th - 20th centuries. Floor-ceiling and working face heights up to c. 3 metres were seen, with upper and lower beds of c. 1m and 2m respectively, with an intervening thin flaggy bed from which some of the voluminous piles of quarry waste evidently came. Significant areas of the top bed had been left unworked, the lower bed evidently having been taken preferentially. Extraction was via a principal haulage way which bifurcated once or twice leading to three or four branches. Large pillars of irregular shape, from 2 to 5 metres 'square' had been left to support the roof. Large areas of floor, other than along the haulage ways and at the working face, had been covered in quarry waste to depths up to 2.5 metres or so - apart from the flaggy bed already noted, the balance of this waste appeared to be from narrow multiple joint zones aligned approximately NW - SE. Abundant wedge marks, some pick marks, and a few drill holes were seen (the latter possibly made in connection with blowing down waste stone from the ceiling.) There were also soot-marks from lamps or candles, and some graffiti.

Sloup Castle, about 7 km NNE of Ceska Lipa

This was, in many ways, the most impressive site visited. An isolated, almost vertical-sided pillar of sandstone about 30 metres high has been fortified (perhaps originally a wooden construction on the top) from Neolithic times. In later periods, a labyrinth of staircases, tunnels, and rooms was made within the body of the rock, amongst which was a bottle-shaped chamber with a circular hole in its roof and carvings on the walls startlingly reminiscent of Royston Cave; it was difficult to prize Sylvia Beamon out of this extraordinary cavity!

Minor Sites Near Cvikov, about 8 km south of the East German border

There are estimated to be at least 1000 underground sites in the sandstones in this region. We visited small rooms carved in cliff faces, an astonishingly well-decorated (and unvandalised) three-room rock chapel by a roadside, and an underground water tunnel (now dry) made in connection with a glass-polishing mill. As we emerged into a large sandstone cavern at the far end, more bottles of wine appeared ... and there were wild raspberries for those

who cared to find them.

Underground Store Near Velenice, about 10 km ENE of Ceska Lipa

A series of very large caverns in sandstone which, it seems, had been taken over by the Germans during the last war, for purposes unknown as all local inhabitants had been removed from this area. For the last 20 years or 80 these caverns have been used for the Czech state firm Zelenina Terezin for storing fruit and vegetables (zelenina = vegetable) and Terezin was presumably the town where the firm had its headquarters.) The site is now derelict as the state firm has been wound up, and it will presumably be returned to its pre-war owners or their heirs or assigns if they can be identified, and want it! Thus our penultimate site visit was to what might well have been the biggest apple-store in the world!

The programme concluded with a splendid and memorable meal at a nearby large village, our CSS hosts taking over the duties of waiters from the Czech equivalent of a 'Fawlty Towers' staff who were clearly unused to such international gatherings'

One evening during the week was given over to lectures as follow~:

Sylvia Beamon on mythology in connection with mining

Joep Orbons (Netherlands) on computerised data-storage / retrieval system for underground sites (including plans and literature references)

Julian Pepinster (France) on underground Paris .

Paul Sowan (UK) on sand mining and sandstone quarrying in the UK

Most of those attending were also able, for a day or two before or after the conference, to explore the beautiful capital city, which must be one of the easiest and cheapest European cities to travel about in. The metro system (three lines, flat fare of about 9p for up to an hour!) is impressively efficient (a train every few minutes, marble-lined stations with neither advertisements nor graffiti) and connects with a thriving tram system and, further out, buses (all having the same 9p flat fare tickets.) The author of this report, at least, did not want to go home!

Paul W. Sowan

31 August 1993

FOR SALE

English translation of "Le Monde Souterrain or Merveilles Geologiques" by M.de Lonchene originally published in 1846. Consists of 80 A4 pages with chapters on fossils, volcanoes, mines, catacombs, caves, etc. in the early Victorian style of writing. Price £6 including postage from Mike Breakspear, 1, South View, Quarry Hill, Box, Corsham, Wilts. SN14 9LW.